CS29003 ALGORITHMS LABORATORY
(WorkSheet 4-Solutions)
Date: Sep 26 2020

1 Ladder and Snake Problem

Solution -

1. Consider the given snake and ladder board as a directed graph with number of vertices equal to the number of cells in the board.
2. Every vertex of the graph has an edge to its neighboring six vertices if those vertices do not have a snake or ladder, otherwise the edge from current vertex goes to the top of the ladder or to the tail of the snake.
3. Since we need to find the minimum number of dice throws, it is required to find the shortest path in this graph.
4. All edges are of equal weight. So, we can use BFS to find the shortest path.

Time complexity is $O(N^2)$ as every cell is added and removed only once from queue.